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BRINGING BIOTECHNOLOGY TO LIFE FOR YEAR 12 STUDENTS

Biotechnology, a new senior biology resource for Year 12 students, brings real world, up-to-the- minute science directly into the classrooms. This unique text, which is being launched today at the Monash Institute of Medical Research by the Governor of Victoria Professor David de Kretser AC, uses biotechnology stories from practising scientists to unlock understanding and help students appreciate the value and relevance of science education to their worlds.

"*Biotechnology* is designed to excite the student by showing how biotechnology can answer some of the intriguing biological questions," writes Professor de Kretser AC in the book's Foreword.

Written by Dr Mary Vail, Dr Claire Borg and Dr Susan Cumming, and published by Oxford University Press, this student-focussed, user-friendly, affordable text answers a real need in Australian schools. Nothing else like it is currently available.

"I strongly believe that science education needs to be people focussed," explained co-author Dr Susan Cumming. "Our aim in writing this book was to unravel the biotechnology requirements for the current Year 12 Biology curricula and make it relevant to the context of today's world – scientifically, practically, socially and ethically."

The book encourages students to use real experimental results, in the form of images and graphs, to make observations and interpretations, engage in discussions and write descriptions and conclusions to expand their thinking and demonstrate their understanding.

By analysing the official examiners' reports from previous years the authors identified the areas and levels of understanding that are difficult for some students to attain. Short Questions in each chapter to reinforce understanding and Learning Activities to help students synthesise information, have been developed to address these concerns. Key Knowledge sections throughout the book also provide summaries for easy review.

A novel feature of the book is the use of Bio Boxes. These supply further context, interesting information, historical perspectives and real insight into working in biotechnology today.

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Furthermore the book does not shy away from controversial issues such as the use of animals in research, the availability of the best medicines for developing countries, and the ethical challenges in embryonic stem cell research. These are integrated throughout the book, together with fabulous colour images of young faces in the laboratory and cells made visible by fluorescent staining and powerful microscopes.

"Biotechnology is an emerging and exciting field. It's unrealistic to be able to undertake much modern biotechnology in schools, especially practical experiences to which even most of our university undergraduates do not have access. Understanding its potential benefits and risks means we can be more informed participants in debates that are often driven by misunderstandings. We are hopeful that this publication will make our society more biotechnology literate" said Dr Cumming.

It is the sincere wish of all the authors that this book will encourage society and, in particular the scientists of tomorrow, to embrace biotechnology in an appropriate manner. The authors' final message is "Biotechnology in humane frameworks can help make the future more prosperous and sustainable for everyone and for the environment in which we, and future generations, live."

About the Authors

The three authors of *Biotechnology* bring a range of complementary skills and experiences to the project.

Dr Mary Vail and Dr Claire Borg are Research Fellows at Monash University; Dr Susan Cumming is an Education Manager at Monash Institute of Medical Research and The University of Melbourne. Dr Cumming has been a secondary school science teacher, active in curriculum design and the Australian Science Teachers Association; Dr Cumming and Dr Vail are university science educators with extensive experience in secondary science teachers' professional development. All three are actively involved in different areas of biotechnology research including cancer, male infertility, chronic inflammatory diseases and agriculture.

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